



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/799,322

03/12/2004

Elias Jonsson

4015-5191

8194

24112 7590 09/17/2008

COATS & BENNETT, PLLC
1400 Crescent Green, Suite 300
Cary, NC 27518

EXAMINER

FLORES, LEON

ART UNIT

PAPER NUMBER

2611

MAIL DATE

DELIVERY MODE

09/17/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/799,322	Applicant(s) JONSSON, ELIAS	
	Examiner LEON FLORES	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-24 and 26-47 is/are rejected.
- 7) ☒ Claim(s) 10, 25, 39 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims (1-47) have been considered but are moot in view of the new ground(s) of rejection.

Response to Remarks

Applicant asserts that *"first, the Final Office Action appears to suggest that Reznik's references to generating "soft decisions" and "hard decisions" are somehow the same as the claimed estimating of a received signal quality. A practitioner of ordinary skill in the art would not confuse these distinct processes. Indeed the Final Office Action contradicts itself by asserting that Reznik's process "would have necessitated the measurement of the SIR in order to determine if the interference has been suppressed." [d.] This statement acknowledges that SIR (signal-to-interference ratio), which is quite distinct from "soft" or "hard" decisions, is a widely used metric of signal quality. In fact, Reznik never mentions SIR (or any other received signal quality metric) at all. Furthermore, there is nothing in Reznik that suggests that SIR (or any other received signal quality metric) must be measured to determine whether interference has been successfully suppressed. Indeed, Reznik teaches precisely the opposite - the iterative cancellation process"*.

The examiner respectfully disagrees. One skilled in the art would know that these decisions may be used to compute signal quality (SNR). (See Bottomley "above" section IV "SNR is based on the decision statistic z" & US Publication 2002/008"863 A1

“figs. 2 & 4) However, to clarify the examiner point of view, the examiner has issued a new final office action.

Applicant further asserts that *“first, Reznik's equation (10) does not disclose (or suggest) scaling an estimate of inter- symbol interference by a scalar value at all. Rather, Reznik's Equation 10, which is reproduced as follows: $d(m) = s(y-c(m))$, teaches that a residual interference vector $c(m)$, output by a feedback interference processor, is iteratively subtracted from the received signal, with the difference multiplied by matrix S . In fact, none of the components of Reznik's Equation 10 are scalar values”*.

The examiner respectfully disagrees. One skilled in the art would know that Matrix O is comprised of scalar values since the multiplication of the hermitian of A and A yields a matrix made up of scalars. And matrix S is calculated based on matrix O .

Applicant further asserts that *“there is no teaching or suggestion in Reznik that any of the components of Reznik's Equation 10 is a cancellation metric representing characterized or measured inter-symbol interference cancellation performance of the receiver. In fact, Reznik is utterly silent with respect to ISI cancellation performance of a receiver, or with respect to characterizing or measuring such performance”*.

The examiner respectfully disagrees. ISI cancellation performance in the receiver is dependent on Matrix S , which further depends on Matrix A . (See fig. 9) And Matrix A is computed based on channel estimates calculated at the receiver, and it contains information about intersymbol interference present in the received data signal.

(See fig. 8 & ¶ 67) Furthermore, Reznik does teach that the system architecture delegates the cancellation of ISI to the direct interference canceller. (See ¶ 95)

Applicant finally asserts that *"there is no support for this assertion in Reznik. Rather, Reznik teaches that S is calculated directly from estimates of the system channel impulse response [see Reznik ¶ 0091-92], completely without regard to the interference-cancellation performance of a particular receiver"*.

The examiner respectfully disagrees. ISI cancellation performance in the receiver is dependent on Matrix S, which further depends on Matrix A. (See fig. 9) And Matrix A is computed based on channel estimates calculated at the receiver, and it contains information about intersymbol interference present in the received data signal. (See fig. 8 & ¶ 67)

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.

Art Unit: 2611

3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims (1-9, 11-24, 26-38, 40-47) are rejected under 35 U.S.C. 103(a) as being unpatentable over Bottomley et al. (hereinafter Bottomley), “A Generalized RAKE Receiver for Interference Suppression”, IEEE Journal on selected areas in communications, Vol. 18, No. 8, August 2000, in view of Reznik. (US Publication 2003/0053526 A1)

Re claim 1, Bottomley discloses a method of determining received signal quality for a received signal in an inter-symbol interference canceling receiver comprising: generating an estimate of inter-symbol interference in the received signal. (See section III: B, “Combining weights and finger delays”, see figure 2 and equations 8, 16, 18, 20 “ Y_{ISI} ”)

Although the reference of Bottomley does teach scaling the estimated inter-symbol interference by a cancellation metric (See equations 7, 9, 41 “the suppression of interference can be seen by applying the weights to the interference components of $Y(mTC)$ ”), the reference of Bottomley fails to explicitly teach scaling the estimated inter-symbol interference by a cancellation metric comprising a scalar value representing characterized or measured inter-symbol interference cancellation performance of the receiver.

However, Reznik does. (See fig. 9: 23, 39 “Matrix S” & ¶s 73, 75, 95 “cancellation of inter-symbol interference or ISI”) The reference of Reznik suggests scaling the estimated inter-symbol interference by a cancellation metric (See equation

10 "Matrix S" & claim 49 "Matrix S such that said scaling performs cancellation of inter-symbol interference ISI") comprising a scalar value representing characterized or measured inter-symbol interference cancellation performance of the receiver. (See fig. 9: 23 "Matrix A, "Matrix O", "Split Matrix O into Matrices T and S" & see fig. 8: 17 & 21 & ¶s 40, 50, 67. ISI cancellation performance in the receiver is dependent on Matrix A. And Matrix A is computed based on channel estimates calculated at the receiver. Furthermore, one skilled in the art would know that Matrix O is comprised of scalar values since the multiplication of the hermitian of A and A yields a matrix made up of scalars.)

Therefore, taking the combined teachings of Bottomley and Reznik as a whole, it would have been obvious (obvious to try) to one of ordinary skills in the art to have incorporated this feature into the system of Bottomley, in the manner as claimed and as taught by Reznik, for the benefit of suppressing inter-symbol interference at the receiver using a scalar value.

The combination of Bottomley and Reznik discloses the limitations as claimed above, except they fail to explicitly teach estimating the received signal quality based on the scaled estimate of inter-symbol interference.

However, the reference of Reznik does suggest estimating the received signal quality based on the scaled estimate of inter-symbol interference. (See figs. 9-11 & ¶s 77 & 101 "soft-decision", "hard-decision", and equation 10. Furthermore, one skilled in the art would know that these decisions may be used to compute the signal quality. (See Bottomley "above" section IV "SNR is based on the decision statistic z" & US

Publication 2002/008"863 A1 "figs. 2 & 4)

Therefore, it would have been obvious (obvious to try) to one of ordinary skills in the art to incorporate this feature into the system of Bottomley, as modified by Reznik, in the manner as claimed, for the benefit of improving the quality of the received signal.

Re claim 2, the combination of Bottomley and Reznik further discloses that wherein estimating the received signal quality based on the scaled estimate of inter-symbol interference comprises estimating a signal-to-interference ratio of the received signal. (In Bottomley, see section IV)

Re claim 3, the combination of Bottomley and Reznik further discloses that periodically estimating the signal-to-interference ratio of the received signal and periodically transmitting corresponding channel quality information to a supporting wireless communication network. (In Bottomley, see sections I & IV. Furthermore, one skilled in the art would know that WCDMA require mobile terminals to compute received signal quality and transmit TCP commands back to the Base station.)

Re claim 4, the combination of Bottomley and Reznik further discloses that periodically estimating the signal-to-interference ratio of the received signal, generating corresponding link power control commands, and transmitting the link power control commands to a supporting wireless communication network. (In Bottomley, see sections I & IV. Furthermore, one skilled in the art would know that WCDMA require

mobile terminals to compute received signal quality and transmit TCP commands back to the Base station.)

Re claim 5, the combination of Bottomley and Reznik fail to disclose storing the cancellation metric in a memory of the receiver as a pre-configured value.

However, the reference of Reznik does suggest (See fig. 9 “Split Matrix O into Matrices T and S” & ¶ 75) storing the cancellation metric in a memory of the receiver as a pre-configured value. (One skilled in the art would know that Matrix S is pre-computed prior to cancelling the inter-symbol interference.)

Therefore, it would have been obvious to one of ordinary skills in the art to incorporate these features into the system of Bottomley, as modified by Reznik, for the benefit of cancelling intersymbol interference.

Re claim 6, the combination of Bottomley and Reznik further discloses that determining the pre-configured value of the cancellation metric by characterizing inter-symbol interference cancellation performance of the receiver, or of a same type of receiver. (In Reznik, see fig. 9: 39 & ¶ 75)

Re claim 7, the combination of Bottomley and Reznik fails to disclose that maintaining the cancellation metric as a dynamically updated value based on inter-symbol interference cancellation performance of the receiver as measured during operation.

However, the reference of Reznik does suggest maintaining the cancellation metric as a dynamically updated value based on inter-symbol interference cancellation performance of the receiver as measured during operation. (See ¶s 75-81 "the cancellation is done iteratively". Furthermore, Matrices S and T are computed based on channel conditions. (See equation 3))

Therefore, it would have been obvious to one of ordinary skills in the art to incorporate these features into the system of Bottomley, as modified by Reznik, for the benefit of cancelling intersymbol interference.

Re claim 8, the combination of Bottomley and Reznik further discloses that wherein the received signal comprises a WCDMA Dedicated Physical Channel (DPCH) signal, and wherein determining received signal quality for a received signal in an inter-symbol interference canceling receiver comprises, for each timeslot of the DPCH signal, estimating the received signal quality based on the scaled estimate of inter-symbol interference, generating a corresponding transmit power control command, and transmitting the power control command to a supporting WCDMA network. (In Bottomley, see sections I & IV. Furthermore, one skilled in the art would know that WCDMA require mobile terminals to compute received signal quality and transmit TCP commands back to the Base station.)

Re claim 9, the combination of Bottomley and Reznik further discloses that, wherein generating an estimate of inter-symbol interference in the received signal comprises generating an expected value of the inter-symbol interference in the received

Art Unit: 2611

signal. (In Bottomley, see section III: B, "Combining weights and finger delays", equation 22.)

Re claim 11, the combination of Bottomley and Reznik further discloses that, wherein estimating the received signal quality based on the scaled estimate of inter-symbol interference comprises estimating a received signal power for the received signal, estimating an additional impairment component of the received signal corresponding to other than inter-symbol interference, and calculating the signal-to-interference ratio of the received signal as a ratio of the received signal power over a sum of the scaled estimate of inter-symbol interference and the additional impairment component. (In Bottomley, see section III: B, "Combining weights and finger delays" & section IV.)

Re claim 12, the combination of Bottomley and Reznik further discloses that, wherein the received signal power, the scaled estimate of inter-symbol interference, and the additional impairment component, are estimated using combined values corresponding to RAKE fingers in the receiver that are associated with the received signal. (In Bottomley, see section III: B, "Combining weights and finger delays".)

Re claim 13, the combination of Bottomley and Reznik further discloses that, wherein estimating a received signal power for the received signal comprises calculating the received signal power based on the magnitudes of net channel

responses and signal amplitudes for propagation paths associated with the received signal. (In Bottomley, see section III: B, “Combining weights and finger delays”.)

Re claim 14, the combination of Bottomley and Reznik further discloses that, wherein estimating an additional impairment component of the received signal corresponding to other than inter-symbol interference comprises estimating an interference variance based on received pilot channel symbols. (In Bottomley, see section III: B, “Combining weights and finger delays”.)

Re claim 15, the combination of Bottomley and Reznik fail to disclose storing a cancellation metric for each of one or more supporting network transmitters, and wherein scaling the estimated inter-symbol interference by a cancellation metric comprising a scalar value representing characterized or measured inter-symbol interference cancellation performance of the receiver comprises scaling an estimated inter-symbol interference estimate for each of the one or more network transmitters by the corresponding cancellation metric.

However, the reference of Reznik does suggest storing a cancellation metric for each of one or more supporting network transmitters, and wherein scaling the estimated inter-symbol interference by a cancellation metric comprising a scalar value representing characterized or measured inter-symbol interference cancellation performance of the receiver (In Reznik, see fig. 9: 39 & ¶s 75, 95 “cancellation of inter-symbol interference or ISI”. One skilled in the art would know that the values of the

cancellation matrix S depend on the channel characteristics, and these values will change whenever the condition of the channel changes. Therefore, one can safely say that these values are stored) comprises scaling an estimated inter-symbol interference estimate for each of the one or more network transmitters by the corresponding cancellation metric. (In Reznik, see fig. 9: 39 & ¶s 75, 95 “cancellation of inter-symbol interference or ISI” & ¶ 66 “a plurality of users” “CDMA”)

Therefore, it would have been obvious to one of ordinary skills in the art to incorporate these features into the system of Bottomley, as modified by Reznik, for the benefit of cancelling intersymbol interference.

Re claim 16, the combination of Bottomley and Reznik further discloses that determining the cancellation metric based on generating a combined estimate for inter-symbol interference and other impairment in the received signal and removing a noise variance estimate corresponding to the other impairment from the combined estimate to obtain the cancellation metric. (In Bottomley, see section III: B, “Combining weights and finger delays”.)

Claim 17 is a system claim corresponding to method claim 1. Hence, the steps performed in method claim 1 would have necessitated the elements in system claim 17. Therefore, claim 17 has been analyzed and rejected w/r to claim 1.

Claim 18 is a system claim corresponding to method claim 2. Hence, the steps

performed in method claim 2 would have necessitated the elements in system claim 18. Therefore, claim 18 has been analyzed and rejected w/r to claim 2.

Claim 19 is a system claim corresponding to method claim 3. Hence, the steps performed in method claim 3 would have necessitated the elements in system claim 19. Therefore, claim 19 has been analyzed and rejected w/r to claim 3.

Claim 20 is a system claim corresponding to method claim 4. Hence, the steps performed in method claim 4 would have necessitated the elements in system claim 20. Therefore, claim 20 has been analyzed and rejected w/r to claim 4.

Claim 21 is a system claim corresponding to method claim 5. Hence, the steps performed in method claim 5 would have necessitated the elements in system claim 21. Therefore, claim 21 has been analyzed and rejected w/r to claim 5.

Claim 22 is a system claim corresponding to method claim 7. Hence, the steps performed in method claim 7 would have necessitated the elements in system claim 22. Therefore, claim 22 has been analyzed and rejected w/r to claim 7.

Claim 23 is a system claim corresponding to method claim 8. Hence, the steps performed in method claim 8 would have necessitated the elements in system claim 23. Therefore, claim 23 has been analyzed and rejected w/r to claim 8.

Claim 24 is a system claim corresponding to method claim 9. Hence, the steps performed in method claim 9 would have necessitated the elements in system claim 24. Therefore, claim 24 has been analyzed and rejected w/r to claim 9.

Claim 26 is a system claim corresponding to method claim 11. Hence, the steps performed in method claim 11 would have necessitated the elements in system claim 26. Therefore, claim 26 has been analyzed and rejected w/r to claim 11.

Claim 27 is a system claim corresponding to method claim 12. Hence, the steps performed in method claim 12 would have necessitated the elements in system claim 27. Therefore, claim 27 has been analyzed and rejected w/r to claim 12.

Re claim 28, the combination of Bottomley and Reznik further discloses that wherein the processing circuit comprises at least a portion of an integrated circuit device that is arranged and configured for baseband signal processing in a wireless communication receiver. (In Bottomley, see fig. 2)

Claim 29 is a system claim corresponding to method claim 15. Hence, the steps performed in method claim 15 would have necessitated the elements in system claim 29. Therefore, claim 29 has been analyzed and rejected w/r to claim 15.

Re claim 30, the combination of Bottomley and Reznik further discloses that, wherein the one or more supporting network transmitters are associated with different network cells, and wherein the processing circuit estimates and scales inter-symbol interference on a per cell basis. (In Bottomley, see section III: B, "Combining weights and finger delays".)

Claim 29 is a system claim corresponding to method claim 15. Hence, the steps performed in method claim 15 would have necessitated the elements in system claim 29. Therefore, claim 29 has been analyzed and rejected w/r to claim 15.

Claim 31 is a system claim corresponding to method claim 1. Hence, the steps performed in method claim 1 would have necessitated the elements in system claim 31. Therefore, claim 31 has been analyzed and rejected w/r to claim 1. Furthermore, the system described in this reference is a CDMA-based system.

Claim 32 is a system claim corresponding to method claim 2. Hence, the steps performed in method claim 2 would have necessitated the elements in system claim 32. Therefore, claim 32 has been analyzed and rejected w/r to claim 2.

Claim 33 is a system claim corresponding to method claim 3. Hence, the steps performed in method claim 3 would have necessitated the elements in system claim 33. Therefore, claim 33 has been analyzed and rejected w/r to claim 3.

Claim 34 is a system claim corresponding to method claim 4. Hence, the steps performed in method claim 4 would have necessitated the elements in system claim 34. Therefore, claim 34 has been analyzed and rejected w/r to claim 4.

Claim 35 is a system claim corresponding to method claim 5. Hence, the steps performed in method claim 5 would have necessitated the elements in system claim 35. Therefore, claim 35 has been analyzed and rejected w/r to claim 5.

Claim 36 is a system claim corresponding to method claim 7. Hence, the steps performed in method claim 7 would have necessitated the elements in system claim 36. Therefore, claim 36 has been analyzed and rejected w/r to claim 7.

Claim 37 is a system claim corresponding to method claim 8. Hence, the steps performed in method claim 8 would have necessitated the elements in system claim 37. Therefore, claim 37 has been analyzed and rejected w/r to claim 8.

Claim 38 is a system claim corresponding to method claim 9. Hence, the steps performed in method claim 9 would have necessitated the elements in system claim 38. Therefore, claim 38 has been analyzed and rejected w/r to claim 9.

Claim 40 is a system claim corresponding to method claim 11. Hence, the steps

Art Unit: 2611

performed in method claim 11 would have necessitated the elements in system claim 40. Therefore, claim 40 has been analyzed and rejected w/r to claim 11.

Claim 41 is a system claim corresponding to method claim 12. Hence, the steps performed in method claim 12 would have necessitated the elements in system claim 41. Therefore, claim 41 has been analyzed and rejected w/r to claim 12.

Re claim 42, the combination of Bottomley and Reznik further discloses that, wherein the device comprises a mobile terminal configured for operation in a WCDMA wireless communication network, and wherein the device is configured to determine the received signal quality via use of the processing circuit for one or more received WCDMA signal transmitted by the network. (In Bottomley, see sections I & IV. Furthermore, one skilled in the art would know that WCDMA require mobile terminals to compute received signal quality and transmit TCP commands back to the Base station.)

Re claim 43, the combination of Bottomley and Reznik further discloses that, wherein the mobile terminal is configured periodically to report Channel Quality Information for a High Speed Packet Data Service signal transmitted by the network based on determining received signal quality for the signal via the processing circuit. (In Bottomley, see sections I & IV. Furthermore, one skilled in the art would know that WCDMA require mobile terminals to compute received signal quality and transmit TCP commands back to the Base station.)

Re claim 44, the combination of Bottomley and Reznik further discloses that, wherein the mobile terminal is configured periodically to transmit forward link power control commands to the network based on determining received signal quality via the processing circuit for one or more WCDMA signals transmitted by the network. (In Bottomley, see sections I & IV. Furthermore, one skilled in the art would know that WCDMA require mobile terminals to compute received signal quality and transmit TCP commands back to the Base station.)

Claim 45 has been analyzed and rejected w/r to claim 1 above. Furthermore, the steps performed in method claim 1 would have necessitated a computer readable medium to store the computer program or instructions.

Claim 46 has been analyzed and rejected w/r to claim 11 above. Furthermore, the steps performed in method claim 11 would have necessitated a computer readable medium to store the computer program or instructions.

Claim 47 has been analyzed and rejected w/r to claim 12 above. Furthermore, the steps performed in method claim 12 would have necessitated a computer readable medium to store the computer program or instructions.

Allowable Subject Matter

4. Claims (10, 25, 39) are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nielsen. (US Publication 2002/0080863 A1)

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEON FLORES whose telephone number is (571)270-1201. The examiner can normally be reached on Mon-Fri 7-5pm Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on 571-272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2611

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/L. F./
Examiner, Art Unit 2611
September 12, 2008

/David C. Payne/
Supervisory Patent Examiner, Art Unit 2611